

Section 2

Integrated Pest Management

Grower Pesticide Safety Course Manual © 2006

The page number at the top right corner of each slide tells you where to find the information in the Grower Pesticide Safety Course Manual. Follow along in your manual as you review each slide.



Integrated Pest Management

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- **the process of planning and taking steps that will prevent or control pests.**





IPM Programs can help you to:

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- **recognize conditions that could lead to pest problems**
- **prevent pest problems from starting**
- **control pest problems**
- **reduce pesticide use**
- **reduce environmental/health risks**
- **prevent pests from becoming resistant**
- **produce long term solutions**

Prevent pest problems by considering:

- Seed quality and varieties**
- Health of the soil**
- Plant nutrition**
- Amount of water and how it is managed**
- Effects of the local climate**
- Handling and marketing of harvested crops**



Example of How IPM Could Help You

Many farmers apply pesticides according to a spray schedule or at a certain time of the year to prevent pests from appearing.

By checking the crops for early signs of pests, you may be able to target your control methods and reduce your use of pesticides.



- **Identification**
- **Monitoring**
- **Thresholds**
- **Methods of Control**
- **Evaluation**





Identification

- **physical appearance**
- **damage caused**
- **life cycle**
- **habits**
- **host plant or animal**



Help to identify pests is available from pest management specialist from:

- **Government**
- **Universities, or**
- **Businesses.**

Pest Diagnostic Clinic

www.labservices.uoguelph.ca/units/pdc



Monitoring

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- **inspection and sampling**
- **how often and what to monitor depends on the pest and the crop**
- **accurate record of information**





- **Action Threshold**
 - the point at which the pest needs to be controlled to prevent the pest from causing unacceptable damage
- **Economic Injury Level**
 - **Damage caused = Cost of Control**

Action Threshold – soybean aphid

Scout, Watch, Take Action, Spray



OMAFRA Quick Decision Check List

1. Have you monitored the field more than once?
2. Has the field reached 250 aphids per plant on 80% of the plants?
3. Is the aphid population continuing to increase?
4. Are weather conditions favouring population growth?
5. Is the crop in the R1 to early R6 stage?
6. Is the crop under additional stress from other factors?

If yes to all of the above, then a pesticide is required.

Economic Threshold Example - soybeans

Economic Thresholds for Bean Leaf Beetle during the R6 (Full Seed) stage of soybeans.

Thresholds developed by the University of Nebraska.

Dollars are in US funds.

R6 Economic Thresholds for Bean Leaf Beetles

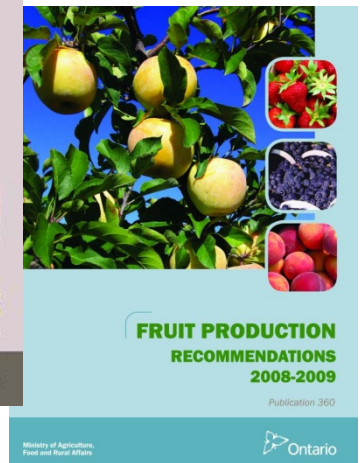
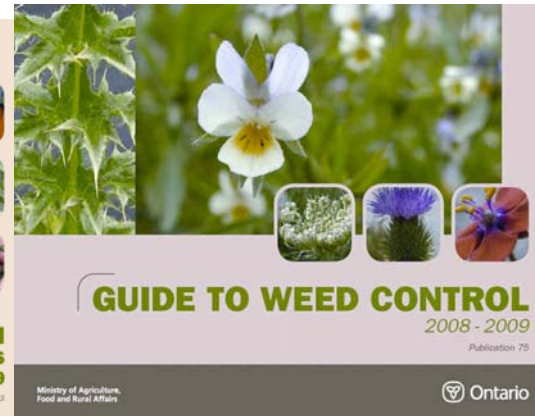
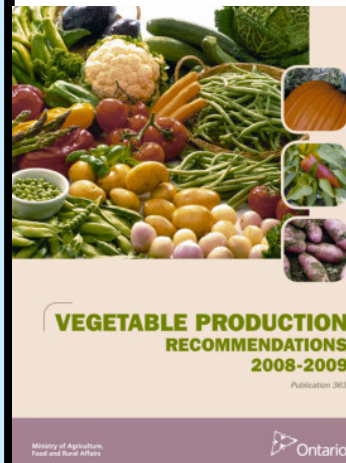
beetles per sweep*	Pesticide costs, \$/a			
Crop value, \$/bu	6.00	8.00	10.00	12.00
5.00	4(3)	5(4)	6(5)	8(5)
6.00	3(2)	4(3)	5(4)	6(5)
7.00	3(2)	4(3)	4(3)	5(4)
8.00	2(2)	3(2)	4(3)	5(3)

* For 30 inch rows. #'s in parenthesis are for drilled 7 inch



Five Methods of Control

- Physical or Mechanical
- Cultural
- Biological
- Genetic
- Chemical



For information, read

OMAFRA Production Recommendation Guides

www.omafra.gov.on.ca/

Methods of Control

- **Physical Methods:**
 - removing pests or preventing the pest from entering the crop
 - screens; mulches; cultivating fields
- **Cultural Methods:**
 - practices common to good land management
 - crop rotation; planting certified seed; using pest resistant varieties



Methods of Control

- **Biological Methods:**
 - use organisms to control the pest
 - parasites or predators
- **Genetic Methods:**
 - use genetically engineered crops
 - disease resistant varieties
- **Chemical Methods:**
 - use pesticides to control the pest



Evaluation



Why?

- **decide if the program is effective**
- **review monitoring methods**
- **modify for future years**
- **forecast pest problems**
- **defend against liability suits**



IPM Specialists, OMAFRA

**Agriculture Information Contact Centre:
1-877-424-1300**

**Northern Regional Office:
1-800-461-6132**

Web Site:

www.omafra.gov.on.ca



Web Sites

OMAFRA

www.omafra.gov.on.ca/

Pest Diagnostic Clinic, University of Guelph

www.labservices.uoguelph.ca/units/pdc

Guelph Turf Grass Institute

www.uoguelph.ca/GTI